REMARKS

Claims 1-23 are currently pending in the application. Claims 7, 11-19, and 23 are withdrawn from consideration. Claims 1-6 and 10 stand rejected under 35 U.S.C. § 102(b). Claims 1, 8, 9, and 20-22 stand rejected under 35 U.S.C. § 103(a). Claims 1-6, 9-15, 18-20 and 22 are amended. Claims 24-31 are added. No new matter is presented. The above amendments and the following remarks are considered by Applicants to overcome each rejection raised by the Examiner and to place the application in condition for allowance. An early Notice of Allowance is therefore requested.

In view of the above amendments and the following remarks, Applicant requests the withdrawal of the rejection of claims 1-6, 8-10, and 20-22 and the favorable consideration of new claims 24-31.

I. Rejection of Pending Claims 1-6 and 10 under 35 U.S.C. § 102(b)

Claims 1-6 and 10 stand rejected as being anticipated by Takuchi et al. (U.S. Patent No. 5,592,042). This rejection is traversed and believed overcome in view of the following discussion.

A. Relevant Law

"A claim is anticipated if each and every limitation is found either expressly or inherently in a single prior art reference." *Bristol-Myers Squibb v. Ben Venue*, 246 F.3d 1368, 1374 (Fed. Cir. 2001). Identity of invention requires that a prior reference disclose to one of ordinary skill in the art all elements and limitations of the patent claim. *Scripps Clinic v. Genentech*, 927 F.2d 1565, 1576 (Fed. Cir. 1991). Absence from the reference of any claimed element negates anticipation. *Kloster Speedsteel AB v. Crucible, Inc.*, 230 USPQ 81 (Fed. Cir. 1986).

B. Summary of Cited Reference

Takuchi is directed to a piezoelectric/electrostrictive actuator having a substrate, a plurality of electrodes in the form of strips, and a piezoelectric/electrostrictive portion which is disposed between the adjacent strips of the electrodes in the spacing direction. The strips are formed on at least one surface of the substrate such that the electrode strips are spaced from each other in a direction parallel to the substrate surface. The piezoelectric/electrostrictive portion is disposed between the adjacent strips of the electrodes in the spacing direction, and in contact with the adjacent electrode strips, so that the deficiencies of Takuchi. Specifically, the Examiner states that Usui is silent in regard to the at least one first electrode, which is embedded in one of a first portion and second portion of the sheet member and a second electrode embedded in one of the first and second portions of the sheet member. The Examiner further states that Takuchi discloses the deficiencies of Usui. Applicants traverse the rejection of claims 1, 8, 9 and 20-22 under 35 U.S.C. 103(a).

Usui discloses, in Fig. 1, an inkjet printer recording head including a vibrating plate 14 made of a piezoelectric material; and two sorts of electrodes 17, 18 that are provided on an upper surface 14a of the vibrating plate 14. (See column 3, lines 14-45).

However, as admitted by the Examiner at Page 8, Lines 5-8, of the Office Action, Usui fails to disclose two sorts of electrodes that are embedded in one of two half portions of the piezoelectric plate 14. The two sorts of electrodes 17, 18 are just provided on the upper surface 14a of the piezoelectric plate 14.

In addition, Usui does not compensate for the above-discussed deficiencies of Takuchi et al. The two sorts of electrodes 17, 18 employed by the Usui's recording head shown in Fig. 1 are a continuous positive comb-like electrode and a continuous negative comb-like electrode. Although Usui additionally discloses, in Figs. 4a and 4b, another recording head including first electrodes 17 and second electrodes 18 that are arranged alternately with each other, those two sorts of electrodes 17, 18 are just similar to the electrode strips 4 disclosed by Takuchi (but the electrodes 17, 18 are not embedded in the vibrating plate 14). Thus, even if it may have been obvious to a person skilled in the art to combine Usui with Takuchi, the combination of the cited references fails to teach or suggest all the features cited in amended claims 1 or amended claim 20 or any of the dependent claims 8, 9, 21, and 22. Therefore, Applicants request the withdrawal of the rejection of claims 1, 8, 9, and 20-22 under 35 U.S.C. 103(a).

III. New Claims

New claims 24-31 are presented. No new matter is presented. With respect to the subject matter of new claims 24 and 27, neither Takuchi et al. nor Usui et al. teaches or suggests providing a plurality of groups of first electrodes each group of which include at least two first electrodes and are embedded in a corresponding one of a plurality of first areas of one of the first portion and the second portion of the piezoelectric layer 6a, such that said at least two first electrodes are separate from each other in said corresponding first area, or a plurality of groups of second electrodes each group of which includes at least two second electrodes and are embedded in a corresponding one of a plurality of second areas of said one piezoelectric/electrostrictive portion produces a flexural displacement or force due to the application of voltage between the adjacent electrode strips.

C. Argument

The Examiner asserts that Takuchi teaches all the features recited in claims 1-6 and 10. Applicants respectfully disagree with the Examiner's analysis.

Since claims 2-6 and 10 depend from independent claim 1, Applicants will address independent claims 1 first.

Takuchi discloses, in Fig. 10, a piezoelectric actuator including a piezoelectric layer 6a and a plurality of electrode strips 4 that are embedded in a first half portion of the piezoelectric layer 6a and do not extend to the remaining, second half portion of the same 6a. The electrode strips 4 include two sorts of electrodes (e.g., positive electrodes and grounded electrodes; or positive electrodes and negative electrodes) that cooperate with each other to produce respective electric fields. The two sorts of electrodes strips 4 are arranged alternately with each other in a longitudinal direction of the actuator.

However, Takuchi does not teach or suggest the subject matter of amended claim 1 (or amended claim 20), providing a plurality of first electrodes which are embedded in a first area of one of a first portion and a second portion of the sheet member, such that the first electrodes are separate from each other in the first area; and a plurality of second electrodes which are embedded in a second area of said one of the first and second portions of the sheet member, such that the second electrodes are separate from each other in the second area, the second area being adjacent to the first area in a surface direction.

Takuchi discloses an actuator having each of the elongate and continuous electrode strips 4 extending over the entire width of the piezoelectric layer 6a or the actuator (See Fig. 1). The respective portions of the above-indicated first half portion of the layer 6a that are sandwiched by respective pairs of adjacent strips 4 are completely separated or isolated from each other by the strips 4. As a result, the strength and durability of the first half portion of the piezoelectric layer 6a of the actuator would be insufficiently low (for example, cracks would be more likely to occur to the first half portion of the layer 6a than to the second half portion of the same 6a).

In contrast, according to the claimed invention, the first electrodes are separate from each other in the first area, and the second electrodes are separate from each other in the second area that is adjacent to the first area in the surface direction. Thus, respective portions of the first or second portion of the piezoelectric sheet member that are sandwiched by one or more pairs of adjacent first electrodes, one or more pairs of adjacent second electrodes, and two or more pairs of adjacent first and second electrodes are continuous with each other. Thus, the first or second portion of the piezoelectric sheet member in which the first and second electrodes are embedded can enjoy high strength and durability.

For the above-indicated reasons, it is respectfully submitted that Takuchi does not anticipate the subject matter of amended claim 1 or any of dependent claims 2-6 and 10. Thus, Applicants respectfully request the withdrawal of the rejection of claims 1-6 and 10 under 35 U.S.C. 102(b) over Takuchi.

II. Rejection of pending claims 1, 8, 9, and 20 - 22 under 35 U.S.C. 103(a) as being unpatentable over Usui et al. in view of Takuchi et al.

A. Relevant Law

An Examiner may find each claimed element of an invention in the prior art references but it is not sufficient to establish obviousness of the invention. *In re Rouffet,* 47 USPQ2d 1453 (Fed. Cir. 1998). A determination of obviousness must involve more than an indiscriminate combination of the prior art; there must be some motivation, suggestion, or teaching of the desirability of combining or modifying the references to arrive at the claimed method. *In re Dance*, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998). Further, rejecting claims solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed inventions itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention is "an inappropriate process by which to determine patentability." *Sensonics, Inc. v. Aerosonic Corp.*, 38 USPQ2d 1551 (Fed. Cir. 1996).

B. Summary of Cited Reference

Usui discloses an ink jet printer recording heard having a plurality of vibrating places. The surface of each vibrating place is integrally provided with a pair of positive and negative comb-type electrodes. When a voltage is applied across the electrodes, the vibrating plates are bent toward the nozzles to pressure the ink.

C. Argument

The Examiner indicates that combination of the cited references teach or suggest the claimed invention. Moreover, the Examiner takes the position that Usui cures the of the first and second portions of the layer 6a, such that said at least two second electrodes are separate from each other in said corresponding second area, or arranging the plurality of first areas and the plurality of second areas alternately with each other in the surface direction of the layer 6a.

For at least the above-indicated reasons, Applicants request the favorable consideration of new claims 24-31. we observe that all claims 1-6, 8-10, 20-22, and 24-31, now under consideration, are placed in condition for allowance. Hence, we solicit the Examiner to withdraw the rejections applied to the claims and reconsider the allowability of the same.

IV. Conclusion

In view of the above amendments and remarks, Applicant submits claims 1-6, 8-10, 20-22, and 24-31, recite subject matter that is neither taught nor suggested by the applied references. Thus, for the reasons presented above, claims 1-6, 8-10, 20-22 and 24-31 are believed by Applicant to define patentable subject matter and should be passed to issue at the earliest possible time. A Notice of Allowance is requested.

Respectfully submitted,

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